Quantitative Easing and U.S. Financial Markets

Joanne Guo, Ph.D.
School of Business, University of Bridgeport, Bridgeport, CT
jguo@bridgepot.edu

Abstract

This paper is a comprehensive study of the unconventional monetary policy taken by the Federal Reserve since the financial crisis of 2008, specifically on the purchases of different assets by the Fed to change medium and long-term rates. Included in this study are the three rounds of quantitative easing, and the two rounds of Operation Twist. A study as such is needed in order to examine if the Fed's purchases of these various long-term assets had any effect on the financial markets in the longer term perspective since the first announcement of the first round of purchase in November 2008. While there exists a variety of literature on the effects of quantitative easing on Treasuries and mortgage backed securities, there is no single study comprising of all the large scale asset purchases by the Fed, covering their effects on all major financial assets. This study is an attempt to fill this void in current literature on quantitative easing.

Introduction

The Federal Reserve has been very visibly pursuing unconventional monetary policy since the 2008 financial crisis, particularly the large-scale asset purchases (LSAPs) of long-term securities including Treasuries, Agency bonds and mortgage-backed securities (MBS). The purchases of these securities are called quantitative easing (QE), for the purpose of reducing medium and long-term interest rates to stimulate economic activity. Quantitative easing has been considered unconventional since the conventional monetary policy taken by the Fed before the financial crisis was to target the short-term fed funds rate. However, the Fed exhausted its conventional monetary influence during the time of crisis when the fed funds rate reached its lower bound of zero, and unusually aggressive monetary stance was needed in order to prevent financial conditions from worsening.

The large-scale asset purchases, or quantitative easing, have been the focus of scrutiny of Fed policies since the 2008 financial crisis to the present time, because while the financial crisis had passed, the subsequent effects of the recession and the weak employment market have lingered, and the Fed is still engaging in quantitative easing in order to prevent possible economic downturn. Subsequent to the announcement of the first round of quantitative easing on November 28, 2008, there have been three more rounds of large-scale asset purchases in August 2010, September 2012, and December 2012.

What is quantitative easing?
The first quantitative easing was announced on November 25, 2008, that the Fed would purchase $500 billion in mortgage-backed securities and up to $100 billion in agency debt of Fannie Mae, Freddie Mac, Ginnie Mae, and Federal Home Loan Banks. Furthermore, in March 2009, the Fed expanded the mortgage buying program with additional purchase of $750 billion more in mortgage-backed securities. The main purpose of this action was to decrease the cost of credit and increase the availability of mortgages for houses purchased, and in turn support housing markets and foster improved conditions in financial markets more generally.

What is operation twist?
To further strengthen the economy and to prevent the recovery from losing its momentum, the Fed also tried to influence the yield curve by selling short-term Treasuries and using the proceeds to purchase longer-term Treasuries in what is conventionally called Operation Twist (OT).

Event-Study Model

An event-study is conducted to measure the impact of QE announcements on the returns of different financial assets.
Using seemingly unrelated regression method, the responses of asset returns/yields are considered using both 1-day and 2-day event windows around the announcements, measured from the closing level the day prior to the announcement to the closing level the day after the announcement.

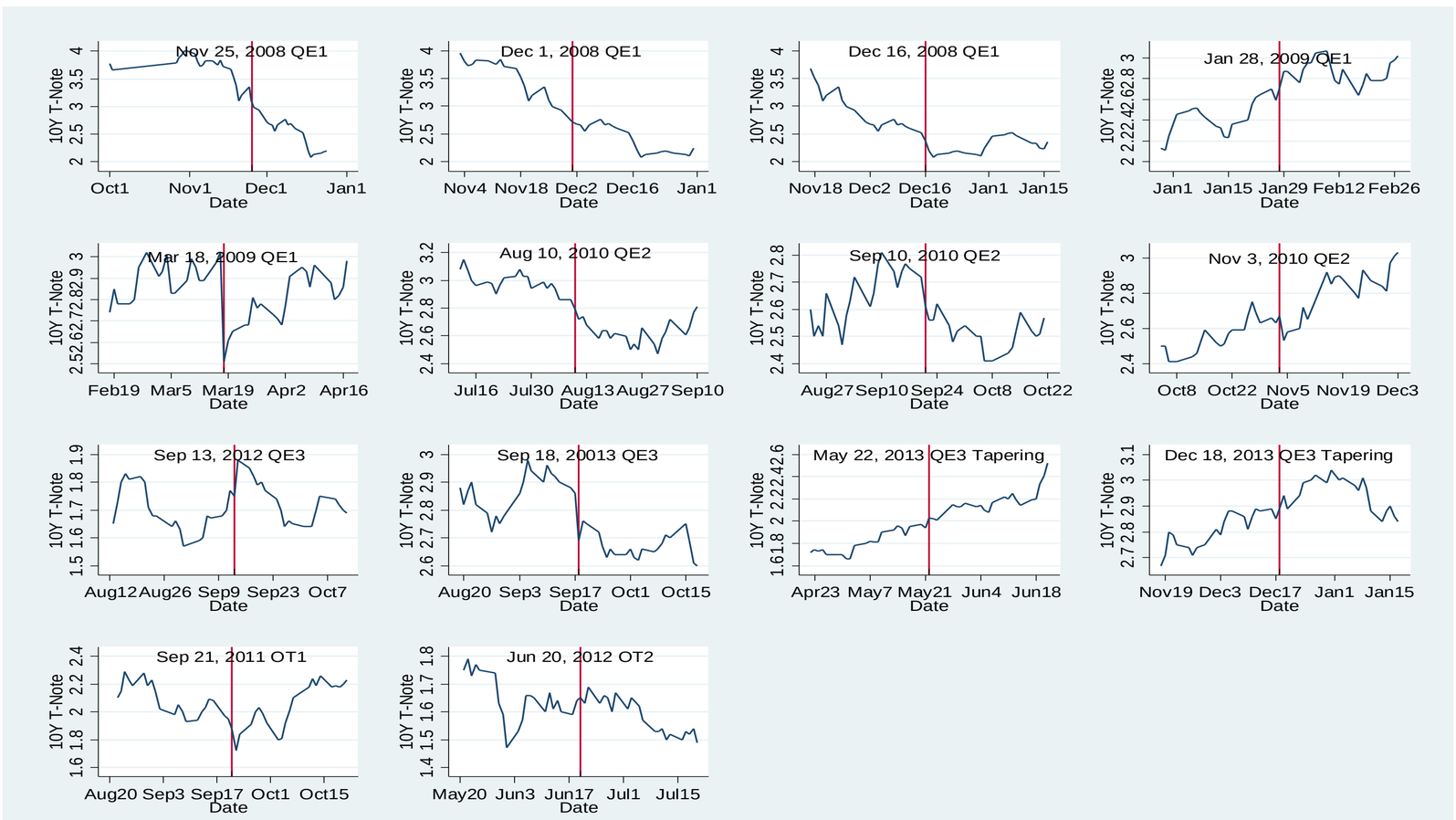
Questions to be answered:

1. *Did the QEs decrease yields on all long-term nominal assets, including Treasuries, Agency bonds, corporate bonds, and MBS?*
2. *Were the effects of QE larger for longer duration assets?*
3. *Which round of QE was more effective?*

Seemingly Unrelated Regression (SUR)

SUR estimator is considered more efficient as compared to OLS. This is because the errors between the financial assets examined in this paper are likely to be contemporaneously correlated. Adopting an alternative approach to time-series analysis, the event-study approach examines changes in asset yields around official communications regarding quantitative easing, while using the cumulative changes as a measure of the overall effects.

$$R_{N,t} = \gamma_{N,\tau} D_{\tau,t} + u_{N,t} \qquad N = 1, \ldots, 24 \text{ and } \tau = t_1, t_2$$



Responses of 10-Year Treasury Yields on QE Announcements